**History of Life Stations Handout**

**Station 1 - The Fossil Record Complex Text**

**Notes:**

**Key Vocabulary:**

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**Review Questions:**

**1. How did Darwin use the fossil record to support descent from common ancestors and natural selection?**

**2. Summarize how the fossil record for ancestors and relatives of the horse supports the relationship between evolution and changing environments.**

**Station 2 - Fun with Stratigraphy (Law of Superposition)**

**Background: Stratigraphy** is a method by which fossils are dated “relative” (or compared) to one another. For example, “X is older than Y because X is in a lower layer than Y.”  (This method is also the oldest method that archaeologists use to date artifacts.)  It is based on Nicholas Steno’s **Law of Superposition** which states that as long as layers of sedimentary rock or sediments are undisturbed the oldest layer will be on the bottom and the most recent will be located on the top. (Think about the pile of clothes on your floor or the stack of papers on your desk.)  Index fossils are often used in “relative dating” because these forms of life existed during limited periods of geologic time and thus are used as guides to the age of the rocks in which they are preserved.

**Directions:** Below is a stratigraphic map showing the different layers of deposited sediments/sedimentary rocks, layers A-G.  Within these layers different fossils were found and numbered 1-9.  Answer the following questions keeping in mind the Law of Superposition.



**Fossils**

**1.** Mastodon       **2.** Condor **3.** *Phacops* **4.** *Stylonurus* **5.** *Naples tree*

**6.** *Eurypterus* **7.** *Cooksonia* **8.** *Lichenaria* **9.** *Maclurites*

**Questions:**

**1.** Which is older: the ***Phacops*** or the ***Maclurites***? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2.** If **G** is a well, when do you think it was dug (in relation to the layers of sediment)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**3.** Is **layer B** older or more recent than **layer D**? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4.** Were there Mastodons living here when **layer E** was being formed? Support your answer.

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**5.** Could there have been Mastodons living when **layer B** was being formed?  Support your answer.

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**6.** Name an organism that lived here when **layer D** was being formed. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**7.** Which is older: the ***Stylonurus*** or the ***Cooksonia***? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**8.** Which was deposited more recently: the ***Naples tree*** or **level D**? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**9.** Is **F** older or more recent than **layer D**?  Explain your reasoning. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**10.** Which is more recent **F** or **G**?  Explain your reasoning. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Station 3 - The Origin of Life Videos**

**Can Science Explain the Origin of Life? 7:10**

Website: https://www.youtube.com/watch?v=fgQLyqWaCbA

**Write a 5 sentence summary about the video. Number your sentences.**

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If you finish early, then view the next video and follow the directions.

**What Was The Miller-Urey Experiment? 7:29**

Website: https://www.youtube.com/watch?v=NNijmxsKGbc

**Record video notes. Write at least 5 sentences. Explain why the** **Miller-Urey Experiment was significant.**

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**Explain why the** **Miller-Urey Experiment was significant.**

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**Finish Much Earlier - Visit the Exploring Life's Origin Timeline**

**http://exploringorigins.org/timeline.html**

**Station 4 - Is This Life?**

**Critical Thinking Task - Analyze & Evaluate**

Analyze Definition: To separate any material or abstract entity into its constituent elements (i.e., diagnose, examine, classify, differentiate, distinguish).

Evaluate Definition: To determine or set the value or amount of an object or action (i.e., judge, calculate, compute, measure, audit, appraise, examine, inspect, review).

**Read the information provide. After studying the data, write a brief explanation whether or not you think the Martian meteorite contains evidence of life. Support you answer with evidence from the textbook.**

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